Logic Board with Processor/Heatsink Replacement Instructions

Follow the instructions in this sheet carefully. Failure to follow these instructions could damage your equipment and void its warranty.

Note: Online instructions covering customer-installable parts are available at http://www.info.apple.com/installparts/.

Tools Required

The only tool required for this procedure is a Phillips screwdriver.

Opening the Server

The server slides open from the front of the rack. The top cover remains in place in the rack while the bottom housing (containing all internal components) should be placed on a sturdy, flat surface.

1. Alert users that the server will be unavailable for a period of time.
2. Shut down the server.

   Warning: To avoid damaging internal components or causing injury, always shut down the server before opening it. After you shut down the server, internal components can be very hot. Let the server cool down before continuing.

3. If the server is in the locked position (the yellow security LED on the front panel is on), use the Allen key that came with the server to unlock it.
4. If the cable management arm is not in use, unplug all external cables except the power cord.
5. Touch the server's metal case to discharge any static electricity.

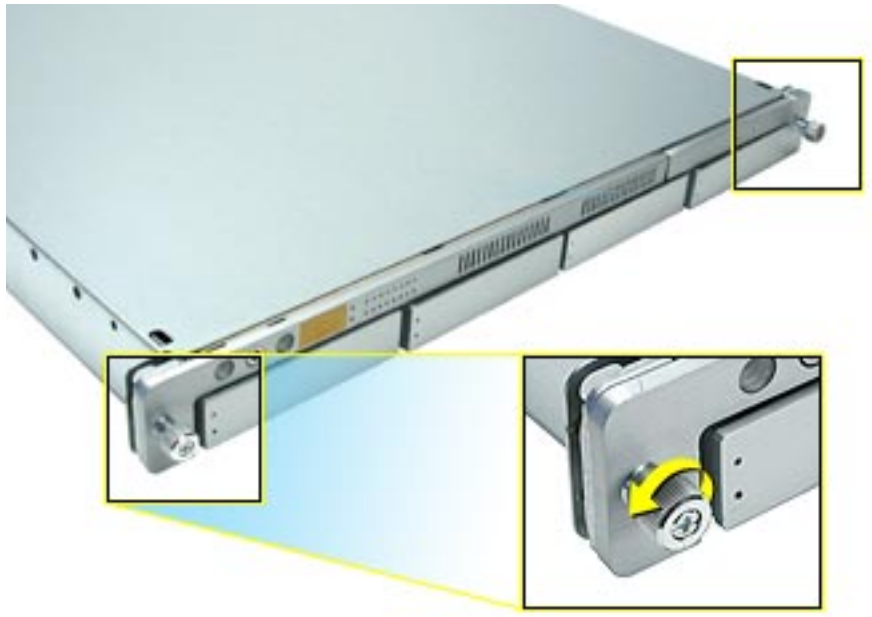
   Important: Always ground yourself by touching the server's case before you touch any parts or install any components inside the server. To avoid static electricity building back up in your body, do not walk around the room until you have completed your work and closed the computer.
6. Unplug the power cord.

Warning: The power supply in the server is a high-voltage component and should not be opened for any reason, even when the server is off.

7. Release the two thumb screws at the front of the server. **(Figure 1)**

   Note: The thumbscrews are captive and do not separate from the bottom housing.

Figure 1



8. Grasp the thumbscrews and slide the bottom housing forward part way to expose the two chassis levers. **(Figure 2)**
9. While depressing both levers, pull the bottom housing all the way forward and remove it from the rack.

Figure 2

10. Place the bottom housing on a sturdy, flat surface and ESD mat.
11. Put on the ESD wrist strap.

Removing the Installed Logic Board

Note: The replacement logic board does not include memory DIMMs or expansion cards. You must transfer these parts from the current logic board.

To remove the logic board, you must first remove:

- memory DIMMs
- PCI/AGP card risers
- heatsink duct
- ATA controller board
- power supply

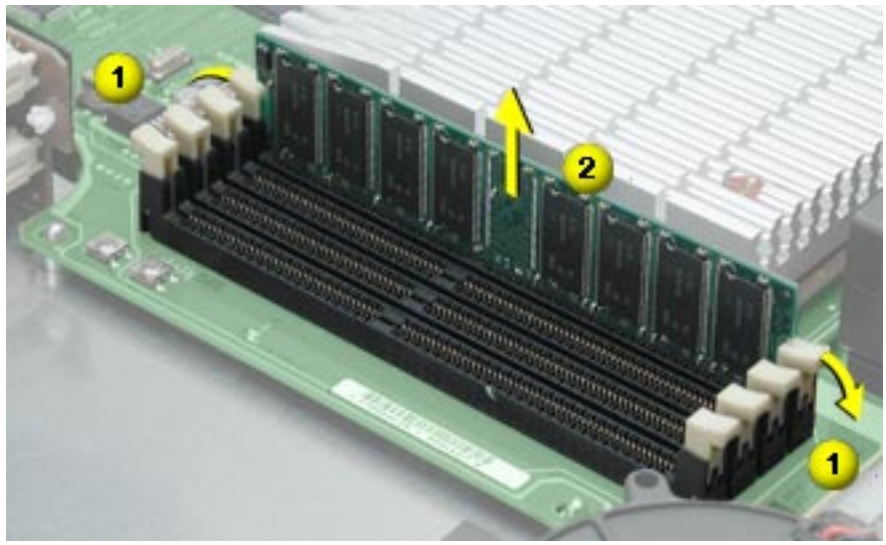
Memory DIMMs

For each installed DIMM, do the following:

1. Push down the ejectors on the DIMM slot. **(Figure 3)**
2. Holding the DIMM by both top corners, lift it straight up out of the server.

Warning: When removing or installing the DIMM, handle it only by the edges. Do not touch its connectors. Lift the DIMM straight up from the connector to remove it, and insert it straight down into the connector to install it. Do not rock the DIMM from side to side.

Figure 3



PCI/AGP Card Risers

Three slots are available for PCI expansion cards. Two slots are on a riser card located at the back left corner of the logic board; an additional slot is on a riser card at the back right corner of the logic board. The following instructions explain how to remove both risers.

Dual-Slot Riser

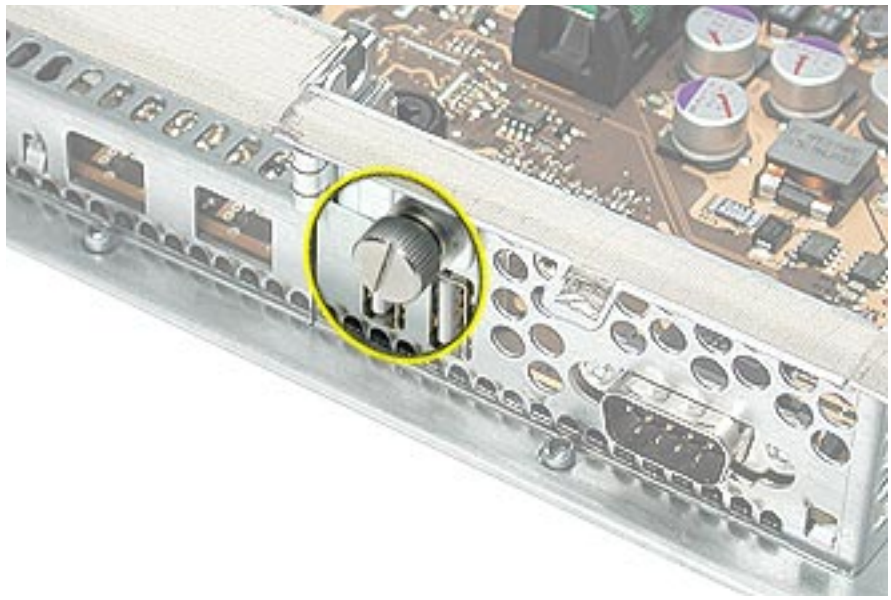
1. Release the thumb screw that secures the card to the back of the server. **(Figure 4)**
2. Disconnect the riser from the logic board and remove the riser from the server.

Figure 4

Single-Slot Riser

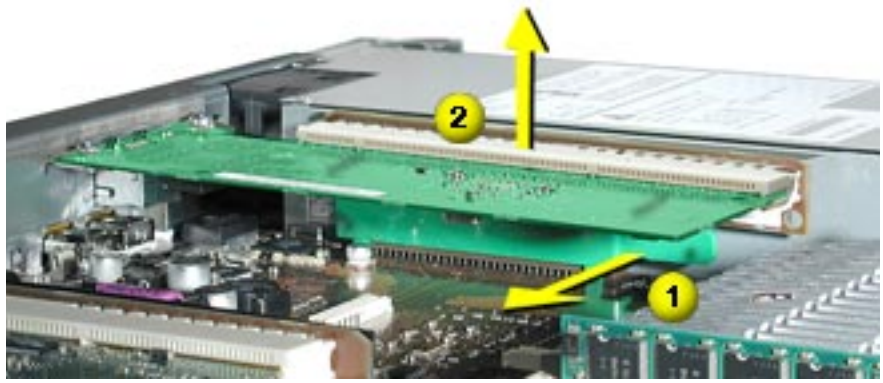
1. Release the thumb screw that secures the card to the back of the server. **(Figure 5)**

Figure 5



2. Pull the clip on the riser forward to release the riser from the logic board connector. **(Figure 6)**
3. Disconnect the riser from the logic board and remove the riser and card from the server.

Figure 6



Heatsink Duct

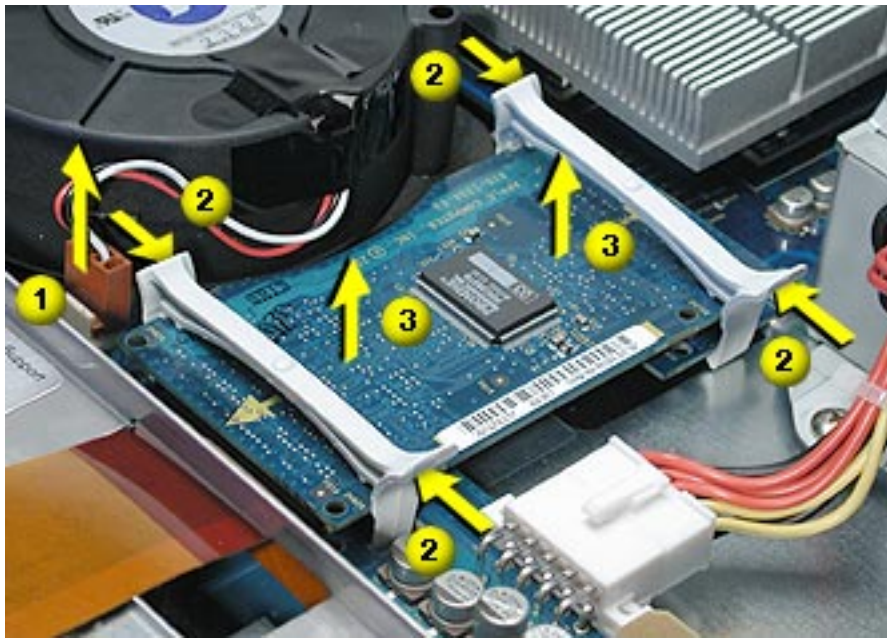
1. Release the latch on the heatsink duct from its slot, slide the duct away from the blower, and lift the end of the duct as shown. **(Figure 7)**
2. Remove the duct from the server.

Figure 7

ATA Controller Board

1. Disconnect the blower cable nearest the ATA controller board. **(Figure 8)**
2. Press in on both ends of the clip securing the right side of the ATA controller board and remove the clip from the server. Repeat for the clip on the left side of the board.
3. Lift the ATA controller board straight up to disconnect it from the drive interconnect and logic boards and remove the board from the server.

Figure 8



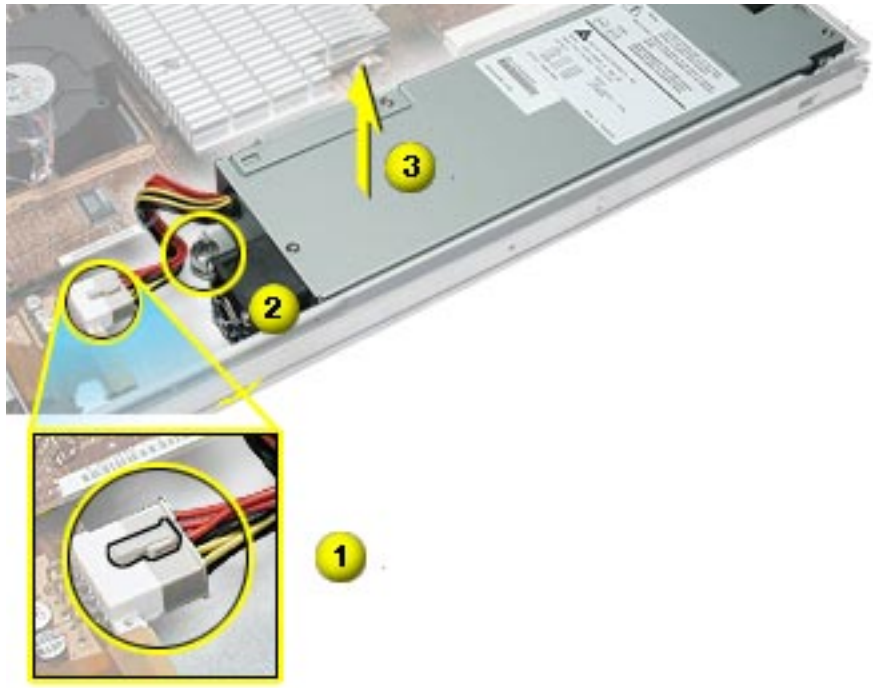
Power Supply

1. Release the locking latch on the power supply cable connector and disconnect the cable from the drive interconnect board. **(Figure 9)**
2. Release the thumbscrew that secures the power supply to the chassis.

   Note: The thumbscrew is captive; you cannot remove it.
3. Grasp the metal flange of the power supply's connector (on the left side) and lift up to disconnect the power supply from the logic board.

   Note: You may need to loosen the left side of the power supply and then lift at another point near the front to disengage it. Do not lift the small lip that contains the thumbscrew.
4. Holding the power supply in both hands, remove it from the server.

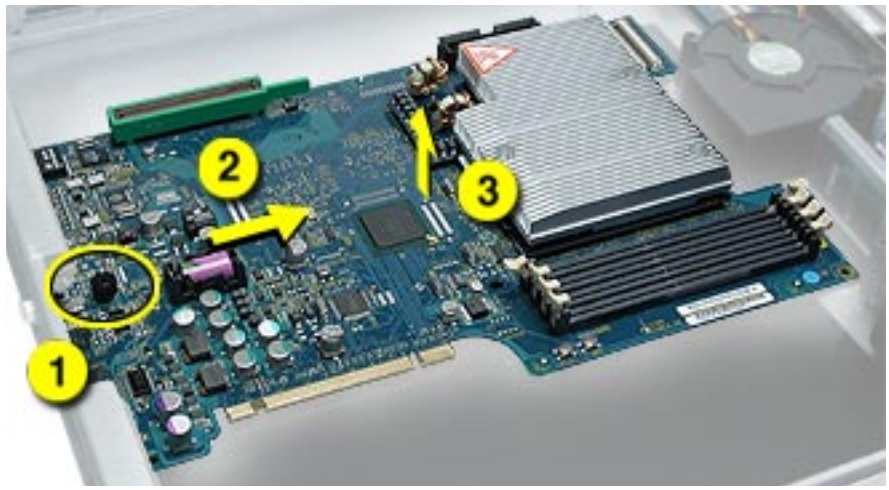
Figure 9



Logic Board

1. Release the thumb screw that secures the logic board to the chassis. **(Figure 10)**
2. Move the logic board forward and up slightly to release it from the four mounting pegs.
3. Tilt up the end of the logic board nearest the blowers so that the board ports clear the chassis.
4. Remove the board from the server.

Figure 10

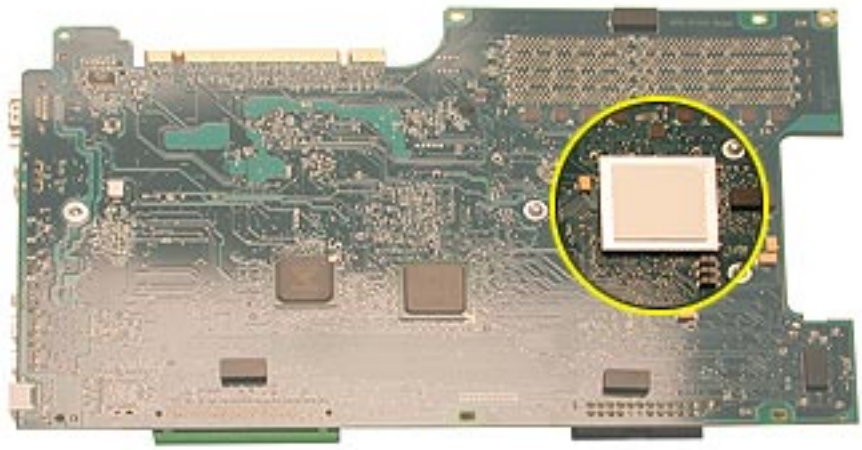


Installing the Replacement Logic Board

1. If the heatsink thermal pad on the underside of the replacement logic board has protective film on it, remove the film. **(Figure 11)**

   Note: The protective film is a very thin layer on top of the thermal pad. Be careful to remove only the film, not the pad.

Figure 11



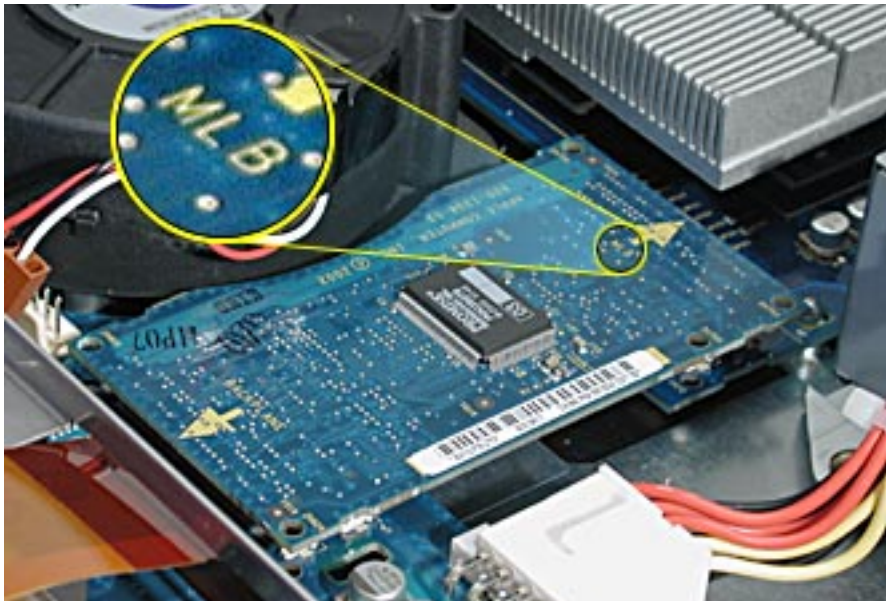
2. Install the replacement logic board in the bottom housing, making sure the board fits over the four mounting pegs on the chassis floor.

   Warning: When replacing the logic board, make sure the ports and the identifier button on the back of the board align with the openings in the chassis.

3. Tighten the thumb screw that secures the logic board to the chassis.
4. Reconnect the power supply to the logic board.
5. Tighten the thumb screw that secures the power supply to the chassis.
6. Reconnect the power supply cable to the drive interconnect board.
7. Reconnect the ATA controller board to the drive interconnect and logic boards.

   Note: When replacing the ATA controller board, align it over the two pairs of connectors on the drive interconnect and logic boards, making sure the “MLB” arrow printed on it points toward the logic board, and press down. **(Figure 12)**

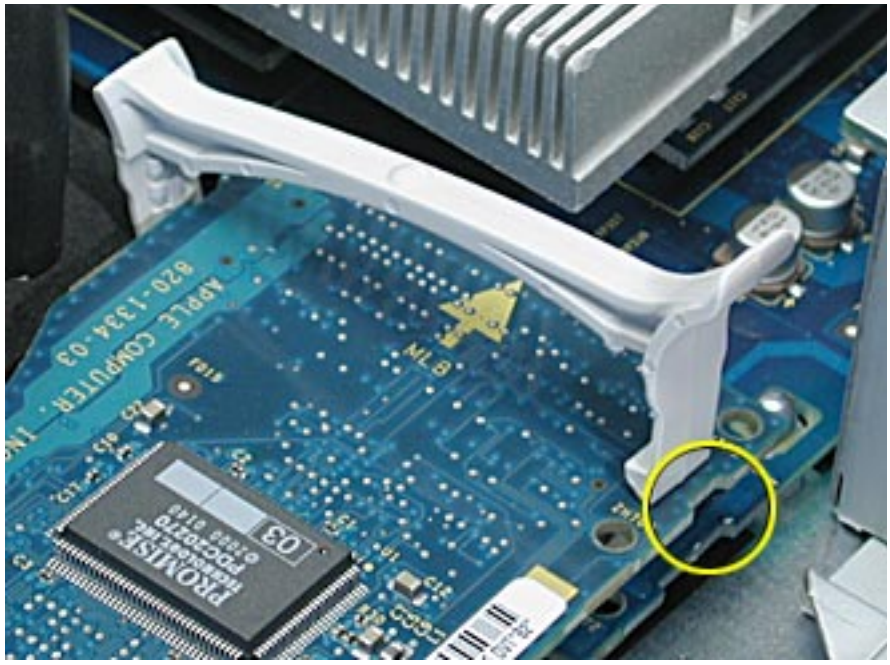
Figure 12



8. Reinstall the two ATA controller clips.

   Note: When replacing the ATA controller board clips, orient them so that the long end of each clip points away from the middle of the server. Place the inside edge of the clip into the small notch and then snap down the outer edge of the clip. **(Figure 13)**

Figure 13

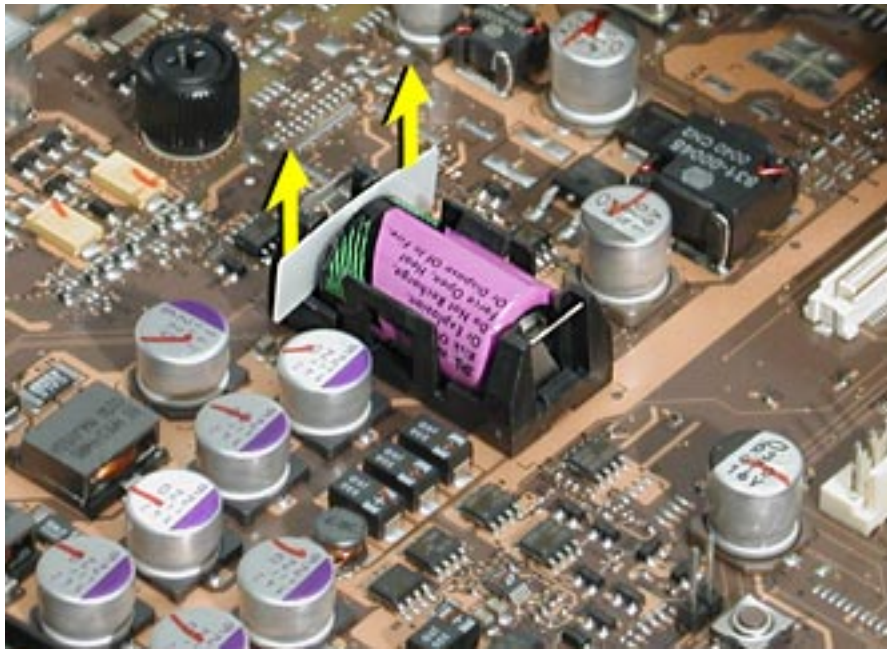


9. Replace the heatsink duct on the heatsink.
10. Reconnect the dual- and single-slot risers to the logic board.
11. Reinstall any DIMMs in the logic board memory slots.

    Note: DIMMs are designed to fit into memory slots only one way. Be sure to align the notch in the DIMM with the small rib inside the slot.

12. Remove the battery insulator tab from the battery holder on the replacement logic board. **(Figure 14)**

Figure 14



Note: Replacing the logic board in the server changes its Ethernet ID number. The new number is printed on an Ethernet ID label packaged with the replacement logic board. After installing the new logic board, cover the Ethernet ID number on the server's back panel with the new ID label.

Closing the Server

1. Carefully slide the bottom housing back into the rack.
2. Tighten the front thumb screws to secure it.

Warning: Never turn on the server unless all of its internal and external parts are in place and it is closed. Operating the server when it is open or missing parts can damage it or cause injury.

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